

## Novel Materials for Mirror Substrate in Space Telescopes, Phase I

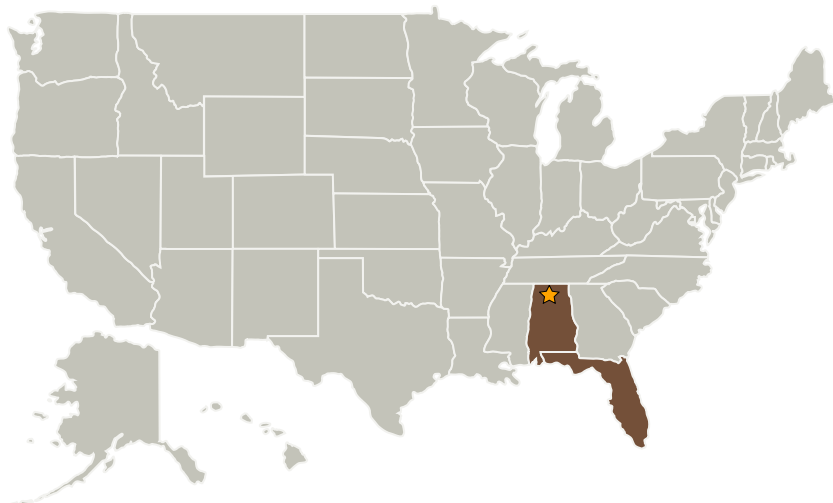
Completed Technology Project (2008 - 2008)



## Project Introduction

Advanced Materials Technology, Inc (AMTI) responds to the NASA solicitation S2 "Advanced Telescope Systems" under subtopic S2.05, "Optics Manufacturing and Metrology for Telescope Optical Surfaces". The proposed program is aimed at developing large, ultra-lightweight mirror substrate, including membrane optics for very large aperture space telescopes. The novel materials offer considerable weight and cost savings. In order to prevent significant figure error, mirror substrate materials should have very low (ideally zero) coefficient of thermal expansion (CTE), low coefficient of moisture expansion (CME), low cure shrinkage, low internal stresses, low outgassing, and high thermal and environmental stability. The ultimate goal of the proposed Phase I program is to develop thin mirror substrate materials that will meet the desired requirements. Once the feasibility of the proposed technology is demonstrated in Phase I, we shall scale-up the thin mirror substrate technology in a Phase II program to meet the NASA requirements.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Marshall Space Flight Center (MSFC)	Lead Organization	NASA Center	Huntsville, Alabama
Advanced Materials Technology, Inc.	Supporting Organization	Industry	Tampa, Florida



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Marshall Space Flight Center (MSFC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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## Primary U.S. Work Locations

Alabama

Florida

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

Akbar G Fard

## Technology Areas

### Primary:

- TX14 Thermal Management Systems
  - └ TX14.2 Thermal Control Components and Systems
    - └ TX14.2.8 Measurement and Control